PROJECT REPORT

Package Sorting System (Volumetric and Actual) Using Arduino Microcontrollers

ANTONIUS MARIA RANGGA KRISTIAN ARDYATNA
13.02.0004

Faculty of Computer Science
Soegijapranata Catholic University
2018

APPROVAL AND RATIFICATION PAGE

Package Sorting System (Volumetric and Actual) Using Arduino Microcontrollers

by

ANTONIUS MARIA RANGGA KRISTIAN ARDYATNA – 13.02.0004

This project report has been approved and ratified

by the Faculty of Computer Science on January 22, 2018

With approval,

Supervisor,

YB. Dwi Setianto, ST., M.Cs
NPP : 058.7.2017.021

Examiners,

1.)

Suyanto EA, Ir., M.Sc
NPP : 058.1.1992.116

2.)

Rosita Herawati, ST., MIT
NPP : 058.1.2004.263

3.)

Hironimus Leong, S.Kom., M.Kom
NPP : 058.1.2007.273

Dean of Faculty of Computer Science,

Erdhi Widyarto Nugroho, ST., MT
NPP: 058.1.2002.254

STATEMENT OF ORIGINALITY

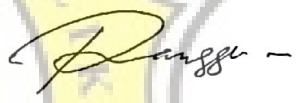
I, the undersigned:

Name : ANTONIUS MARIA RANGGA KRISTIAN ARDYATNA

ID : 13.02.0004

Certify that this project was made by myself and not copy or plagiarize from other people, except that in writing expressed to the other article. If it is proven that this project was plagiarizes or copy the other, I am ready to accept a sanction.

Semarang, January 22, 2018



ANTONIUS MARIA RANGGA KRISTIAN ARDYATNA
13.02.0004

ABSTRACT

Sorting is an activity where the process of selecting and grouping an object, based on certain criteria or condition. However, of the many people/business entities that use the sorting process on their business or needs, still found the sorting process that runs manually (not yet modern) because It has not been integrated with the computer.

With the system already integrated with the computer, it will make the sorting process more modern and much more effective.With the sorting system integrated with computers, sorting process will be much more effective and more modern. Making this prototype, is expected to overcome the problem.With this prototype, expected to be able to overcome the problem. Because this prototype works automatically and minimal human intervention (integrated with Arduino Microcontroller).

Prototype of this package sorting system, capable of measuring dimensions of length, width, height, or even measuring the volume dimensions of the packet. In addition to being able to measure the volume packet, this prototype is also capable of converting volumetric weight, measuring the mass/weight of a package as the actual weight, and being able to determine a decision to be taken (actual weight or volumetric weight).

Keyword : *Arduino IDE application, package sorting system, prototype, Arduino microcontroller, actual weight, volumetric weight.*

PREFACE

In the final report of this project, consists of several chapters :

Chapter 1 : Discussing the background of issues raised in this project, the problem limit, and the purpose of making this project.

Chapter 2 : Containing a literature study that talks about the journals used as references in this project. The journals include discussing about the use of ultrasonic sensors and load cell sensors. Ultrasonic sensors are used to measure the distance of an object, the distance of a room, and detect the surrounding state. The load cell sensors is used to perfom a value comparison between the load cell sensors with the digital scales, and the vehicle weight measurement. Of the journal, will be developed into a new project. Ultrasonic sensors, laser sensors, and ldr sensors are used to measure packet volume, and load cell sensors to measure the weight or mass of packets.

Chapter 3 : In this chapter, containing some points.

Point 1, talking about journals related to this project. The contents are things that can be learned or taken from the journal. For example : the measurement of the distance of an object using a laser sensor, ultrasonic sensor, and ldr sensor, it can be used to calculate the length, width, and height values of obejcts in the packet sorting process.

Point 2, containing the methods used in this project. This method consists of 3 parts :

- volume measurement method
- weight measurement method
- testing method.

Chapter 4 : Containing about analysis and design.

In the analysis section, discussing about the project analysis, table and graphics analysis of the test that has been done, component and sensor used, and explanation of the fucntion of tools or components or sensors used in this project.

Chapter 5 : Containing about implementation and testing.

In the implementation section, there is a screenshot code that is important in this project.

In the testing section, containing more testing processes that lead to functional testing. In this chapter, there are some photos when the test is done. Such as a photo when the packet is above the conveyor (packet volume measure), the packet drops to the weighing board (the packet weight gauge), and a photo of the calculated result display on the 16x2 LCD display screen and the serial monitor.

Chapter 6 : Discussing the final conclusions of this project. And also containing a explanation of the answers to the problem limits in Chapter 1. In addition to the conclusion, in this chapter also narrates the constraints or problems encountered, as well as suggestions or solutions for the development of this project in the future.

TABLE OF CONTENTS

ILLUSTRATION INDEX

INDEX OF TABLES